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A THEORY OF PERCEPTION

I.

THIS paper is concerned with the issue between the representative and the presentative theories of *visual perception.* If the issue be introduced by the proposition

"The observer N located at O perceives at the time t a distant thing T by means of a percept p which occurs at x at the time y,"

the question is whether $x = O$ and $y = t$. The representationalist says yes, the percept is where the observer is, a location which will be called *station,* and therefore the percept does not present T directly, but is a mere image or representation. The presentationalist disagrees and locates p at T, which spatio-temporal region is to be designated as the *source;* to him the percept is a direct disclosure, it presents T, as it were, "in person." The difference thus stated is a family affair of realism. Both sides accept the reality of the external world with physical things (or events) in it separated from one another by space and time (or by space-time); the arguments and counter-arguments which arise against this background of agreement are familiar to the American reader who has followed the controversy between the new realists and the critical-realists. I shall assume his familiarity, and proceed by pointing out that both sides are wrong in disregarding certain basic pronouncements of common sense. I do not mean that a philosophy must always follow in the trail of common sense, but that it can not last long if it challenges the few universal and persistent convictions of mankind.

The representationalist is at odds with the intuition of a public world in which direct transaction of one agent with another is *continuous* with their visual experience. To give a simple illustration. I see a plum on a tree which I pick and eat. In this act there is a continuous transition from visual percept of the plum to sensation of its taste; and if the latter is a direct experience, it is hard to believe that the former is only an indirect representation; for there is no clear-cut boundary which would separate the diminishing visual form from the emerging tactual percept; with a squint of the eye I see one half of the plum while biting at the other.

Of course, the radical representationalist would argue that even the experience of holding and eating is the experience of subjective sensations. I suppose he would admit that there is direct transaction with the plum in the process of digestion only because normally this process is unconscious. But common sense knows that one gets hold of a thing and not of a sensation, that sight anticipates and directs the grasp to follow, and that consciousness does not shut a man off from direct transactions with the world by making him aware of these transactions. Common sense recognizes that some people live behind the screen of their own fancy, but it recognizes this as insanity. If the representationalist were right, the right place for mankind would be an asylum.

The presentative theory is against common sense in taking the opposite extreme of an excessively "public-minded" attitude. The presentationalist is not content with direct perception of contemporaries, but believes that events of the past can also be perceived in the original. The plausible view is, of course, that the past is known only through representation, by memory-images, descriptions, or through the interpretation of records and of relics. For by definition a past event is gone; and once it is gone, it is not available for any transaction, not even for perception. Though there are many stories about Socrates, one can not see or talk to him, so the name stands merely for a biographical description. The sense of loss at the death of a close relation certifies to the truth of one's intuition that an avenue of direct transaction with the world is henceforth closed. Memory of the dead does not mitigate the surviver's sorrow, because it reminds him of the fact that the memory-image is not the original object but a lifeless reproduction. In claiming direct communication with past events the presentationalist is more absurd than the spiritualists who at least engage a medium to communicate with the dead.[1]

Realizing that these violations of common sense come from opposite directions, I shall try to compromise. I still would side with the presentative theory in a restricted version according to which under normal conditions events of the physical world are perceivable without mediation;[2] but it seems to me that when it

[1] When the existence of past events is rightly denied, the word "event" must be taken in its primary sense of an act, a manifestation of actuality, or a percept. To act one must act in the present. But there is another sense of "event," a designation of a space-time region which is a set-up of dispositions to be actualized in the various percepts of alternative perspectives. In this second sense an event is a timeless entity.

[2] To say that normal perception is direct is vague. Without attempting a greater precision, I can add some explanation. I take normal perception to be a guide for action; hence when the object perceived is beyond the perceiver's range of action, I do not expect the percept to disclose the actual location of the object.

comes to double vision, mirror images, psychological aberrations, Doppler's shifts to the red, and the like, the locating of percepts at the source is a far-fetched hypothesis which no ingenuity can make plausible. But if perception by representation is to be granted in many exceptional cases, one might suggest, as a way out of the difficulty of the presentative theory, that perception of past events is one of the exceptions. Unfortunately this suggestion implies the complete refutation of presentationalism because of the fact that what appears to be perception of contemporaries is in reality perception of manifestations the source of which is in the percipient's immediate past. Even the fastest means of propagation, the light ray, takes some time to travel from the source to the station, so that when it reaches the observer it reports to him a past phase of the thing at the source which may differ from the phase simultaneous with the act of perceiving. The difference is likely to be trivial for all terrestrial distances in view of the superlative velocity of light, but when astronomical distances are involved one sometimes observes celestial phenomena which in reality ceased to exist long ago. Whether the difference is small or large, there would seem to be at least a numerical difference between the phase perceived at the present and the phase in the past, and inasmuch as the act of perception has for its object of reference the latter phase, the suggestion that the past is perceived by representation would rule out the possibility of direct presentation altogether. This consideration appears to be overwhelmingly in favor of representationalism. Yet if one can demonstrate that manifestations of a physical thing are identical with percepts, that they are not representations, and, finally, that they are differently dated so that in the act of perception one always picks out a contemporary manifestation even if it belongs to a thing of the past the preceding consideration will lose its force.

II.

Consider the statement that the percepts are coextensive with the manifestations of a distant physical thing (or event), and that, prior to these manifestations, the nature of the thing (or event) consists in *dispositions* for manifestation. This statement is in accord with the physical relativity theory, but the reader who is not familiar with relativity will find that even in elementary physics a thing is described as a set-up of dispositions.[3] For as C. D. Broad

Distant stars often appear to be equidistant from the earth, when actually some of them are much closer than others. Even within the terrestrial horizon of vision exceptional conditions, such as unusual lighting, may determine a transformation of percepts from veridical presentation into deceptive representation.

[3] In the space-time of relativity the elements are four-dimensional events. As such they transcend experience, but they are sources of alternative sets of

puts it:

> Almost every adjective which we are justified in ascribing with any confidence to a physical thing is either explicitly dispositional or is an ambiguous adjective used in its dispositional sense. . . . Now whenever we conjoin a dispositional adjective to a substantive we are expressing in a categorical form a hypothetical proposition of the following kind. "If this were in a certain state, and were in certain relations to certain other things of certain specified kinds, then certain events of a specific kind would happen either in it or in one of these other things." [4]

Let me illustrate the preceding passage by taking at random a few physical properties. "Elasticity" is a disposition to resume an original shape or bulk which can be expressed by the hypothetical proposition "If the thing *T* is distorted in shape or bulk, then, after the forces of distortion are removed, *T* returns to its normal state." "Combustible" is a disposition to be explained by the hypothetical proposition "If the thing is put on fire, it burns." "Energy" is a disposition for doing work by virtue of motion. And so on. The only correction to Broad's statement which I might suggest, is a replacement of his phrase "almost every adjective . . ." by the unqualified "every adjective. . . ." This correction can be justified in connection with the further important point, that all manifestations of a physical thing are ultimately reducible to observable data, i.e., to percepts, or else to conditions of such data. For if this second point is made, every adjective ascribed to a physical thing can be said to be a disposition for the ultimately obtainable observable data or percepts. Now I think that the positivists and phenomenalists in physics have actually proved that all physical processes can be adequately described in terms of perceptual data and their correlations. In particular I can refer to V. F. Lenzen, who begins by showing that a physical thing is "something which can scatter radiation and exert pressure." [5] He then asserts that "the properties of radiation are thus defined in terms of the visual aspects which it makes possible." [6] And, of course, pressure can be defined in terms of tactual sensation. This entitles Professor Lenzen to conclude that "the physical world is the object of a hypothetic-deductive system of concepts, which

manifestations in the perspectives of different observers, each of which forms its own mode of separating the dimension of time from the dimensions of space. This means that the events of space-time are dispositions for perceivable events in space and time separated from one another. For further explanation cf. my *Philosophy of Relativity*, Allen & Unwin, 1937.

[4] *Examination of McTaggart's Philosophy*, 1933, Cambridge University Press, p. 149.

[5] *The Nature of Mind*, University of California Publications in Philosophy, 1936, p. 36.

[6] *Ibid.*, p. 35.

serve to interpret given and possible sense-data." [7] Thus the relation between a physical thing (or event) and its manifestations is a relation between a *set-up of dispositions* and their actualizations in percepts, which I shall call *perceptualizations*. Some reflection on the nature of this relation will help the reader to understand, first, that percepts are not representations of physical things and, second, that they are located at the source.

A percept is not a representative of a thing, because actualization of a disposition is a relation which is different from representation taken in its usual sense. Unless representation is by arbitrary decision, X represents Y because of the identity of the pattern in which both participate or, more generally, because of some other kind of similarity between them. A typical instance of representation is the resemblance between a copy and its original; but even when, as in symbolism, similarity between the symbol and the symbolized is reduced to a minimum, there remains the resemblance of the parts which these take in a certain scheme. Thus integers in their order of magnitude can symbolize by representation the kings of England in their order of succession because both orders are instances of the same serial order. On the contrary, dispositions and their actualizations belong to entirely different orders. Perhaps the contrast between potentiality and actuality is the most radical difference that can be found in reality; at any rate, their dissimilarity can be easily demonstrated by comparing different perceptualizations of the same thing. For example, the same head in full-face, in profile, and from the back, shows three aspects which can not be said to resemble the head itself for the simple reason that they do not resemble one another. One can think of other examples where the dissimilarity of manifestations is even less questionable and, if this is conceded, the necessity for locating the manifestations-percepts at the physical source is immediately apparent. For if percepts show neither resemblance to one another nor to the physical set-up of dispositions, one of the major reasons for ascribing these percepts to the same thing as its actualizations must be the fact that they all emanate from the same region. A further effort at an understanding of perceptualization adds another reason. While percepts do not represent, they realize dispositions; but realization into actuality allows for difference in degree of specification and in amount of detail. The truth that we judge actuality by the measure of specification comes out clearly in our hesitation to recognize dreams as actual events because of the inherent indeterminacy of their setting. Again the novelist dominates the reader's imagina-

[7] *The Nature of Mind*, p. 36. Cf. also the statement: "The assumption of the existence of a physical world is based upon the acceptance of propositions such as, If a thing scatters radiation, a visual aspect becomes possible" (p. 37).

tion by means of an accumulation of descriptive details and of specific characterizations. Yet if complete actuality is to be identified with the highest attainable determinacy, we must agree that the real world of common experience is never completely actual. Excess of detail and distinctness, as in a photograph, gives an impression of unreality. As Elisabeth Bowen says:

> The lake showing every ripple, the wood showing every leaf, or the stately neck with pearls are too deadeningly clear. It is more than colour they lack. Without their indistinctness things do not exist; you cannot desire them.[8]

Our natural percepts lack specificity.[9] Nevertheless they give a sense of reality, which means that they appear to be actual manifestations rather than dispositions. This is possible because, although they lack specificity, percepts are not indeterminate but *determinable*. An indeterminate entity not only is not, but can not be made, specific; a determinable percept, on the other hand, can be raised to a higher degree of determinacy, for example, by concentration of attention. As I write this I now and then look to the right corner of a piano keyboard which, against the dark background of the piano's body, appears to be a strip of white crossed by a few lines which divide the keys from one another. Except for the nearest corner of the keyboard I do not discern the lines of division specifically, but neither do I see positively an absence of such divisions. The percept is rather determinable. I feel a disposition for new divisions to be detected upon concentration of attention. The fact thus illustrated, that our percepts are determinable, or a mixture of disposition and actuality, has a direct bearing on the location of percepts. If the physical thing were purely dispositional and percepts purely actual, one might argue with plausibility that their respective locations are not the same. But as soon as we admit that perceptual actuality is rooted in or even permeated by disposition, we realize that the two must go together: either both are at the source or both are at the station. And since, according to the physicist, a physical thing is a set-up of dispositions at the source, there seems to be only one reasonable alternative, the percepts are also at the source. The other alternative, the location of

[8] *The House in Paris*, N. Y., A. Knopf, 1936, p. 125.

[9] I do not want to tread on the ground which I have covered elsewhere and shall be content to point out that the fact that concentration increases determinacy of percept is a proof as incontrovertible as one can expect to have that, prior to concentration, the original percepts were non-specific but determinable. If in my "Images in Art" (*Philosophy*, Vol. XIV, 1939, pp. 59–67) I have argued that specific images are attainable in art, this is not to be understood as a lack of discrimination between art and photography. An artistic picture, unlike a photograph, does not give much detail; although a conventionally simplified presentation, it is specific, because, after it has been taken in by a spectator, it leaves no room for further specification.

percepts at the station, would introduce a superfluous duplication of disposition; first, the dispositions which make up the physical thing at the source, second, the dispositions which permeate the percept at the station. Let the reader realize how awkward this duplication is by means of a concrete illustration. Suppose that, as he glances at this page, there arises a percept, located somewhere in his organism, of a multitude of black letters scattered in sets of strings against a white background. Before he has read this page, these letters can not be specifically discerned, so that the original percept is only determinable. Now if its disposition for determination were located in the reader, he should be able to go on reading by specifying his percept and without looking at the page. But if he closes his eyes, he immediately realizes that the percept is indeterminate and not determinable. Of course, one might say that a continuous supply of stimuli from the page to the eye is an indispensable physiological condition under which the process of perceptual discernment must be carried on; but even if it were, it is not a sufficient condition because a continuous supply of stimuli may go on without any effect on the specification of percepts, as happens, for example, when a person is so absorbed in his thoughts that with his eyes open he is nearly blind to his surroundings. Furthermore although visual stimuli are specific processes, and therefore one should expect their perceptual effects to be always specific, percepts are determinable, and the hypothesis of their location at the station would have to explain the lack of perceptual specificity as an effect of the observer's mind, which, as it were, clogs the data that otherwise would be determinate. But joined with the assertion that perceptual specification is also an action of mind, this explanation has the mind undoing what it has done, i.e., clarifying what it has veiled, which is reminiscent of the medieval attempt at reconciling God's omniscience with man's freedom by the notion that God deliberately beclouds his vision of human destiny. One's common sense does not make mind responsible for indeterminacy in perception but agrees with Whitehead when he says that consciousness is "the supreme vividness of experience." [10]

The conclusion that percepts are located at the source must be cleared of a certain ambiguity. For location in one sense is itself a perceptualization; this is clearly seen from the fact that the position of a thing is functionally connected with its size, shape, and some other sensory properties. This perceptual location is a relational datum showing the position of a thing in relation to other perceptual regions. On the other hand, location as an issue between the representative and the presentative theories is to be taken in its "in-

[10] *Modes of Thought*, N. Y., Macmillan, 1938, p. 170.

trinsic" and physical sense; as such it can be adequately explained only in terms of four-dimensional regions of space-time. But as an approximation the distinction between physical and perceptual location can be established by recourse to tactual experience. One then defines physical location as that perceptual location which is made by observers in the immediate neighborhood of a thing, as visual location which is associated with the possibility of tactual cognizance of the object of perception, in particular with the possibility of obtaining its measurements.

III.

According to a recent version of the presentative theory, christened "objective relativism" by Arthur E. Murphy, a physical thing shows relatively to different standpoints alternative characteristics of the same kind.[11] The cars speeding past a bystander along Fifth Avenue are like crawling bugs when looked at from the top of the Empire State Building. Also things have alternative shapes in relation to different angles of vision, and so on for other qualities; but when it comes to the *date* of some happening, the objective relativist stops short and refuses to accept the existence of a set of alternative dates. This exception seems to me to be conditioned by a tacit identification of successive dates with temporal succession from the past through the present towards the future. For on such a basis the conviction of common sense that past or future things can not be present and vice versa becomes the assertion that a thing can not have a set of alternative dates. As I identify my present with the writing of this paper its date is the year of 1939, and I know that whatever has happened to me in 1938 or before does not exist now and therefore can not be dated as 1939 from some different standpoint. With this interpretation of the situation the objective relativist would partly disagree. He would grant that if my present is taken to be 1939, there is no standpoint from which the events of my past biography could still be viewed as present, but he would deny that these past events are entirely non-existent. On the contrary, he would hold that now, in 1939, there are distant regions in the universe from which the events of my past life can be directly perceived. Now it seems to me that one can be thoroughly

[11] So far as I know, the most systematic presentation of objective relativism is found in E. B. McGilvary's "Perceptual and Memory Perspectives," this JOURNAL, Vol. XXX (1933), pp. 309–330. Whitehead's doctrine is a compromise with the representative theory rather than pure objective relativism. Cf. my *Philosophy of Relativity*, Allen & Unwin, 1937, pp. 72 f. An important difference between Whitehead and my theory is his treatment of sense-perception as a source of distinct and determinate data; indeterminacy in perception, according to Whitehead, comes from a different source, which he calls "the mode of causal efficacy."

consistent with the main thesis of objective relativism and yet not subscribe to this opinion which is obnoxious to common sense, if one rejects, as one must, the identification of the succession of dates with the physical process of time. Let the source in the past be a set-up of dispositions for various manifestations at different dates; then the percipient will always pick out the manifestation which has the same date as his own act of perception. He then will perceive the dispositional past in its present perceptualization. What I propose is an extension of objective relativism to allow for alternative dates as well as for alternative sets of other characteristics of a physical thing.

The status of the past of a distant thing, taken in abstraction from the alternative dates of its various perceptualizations, can be fully explained only by drawing upon the resources of the physical relativity theory. If it means anything to the layman I can tell him that the physical past consists of regions represented by the lower light-cone drawn on one's space-time map of the world. Leaving aside scientific technicalities I can only say that the physical events of the past have a causal influence upon me while I can not reciprocate, and that such inability to reciprocate is the source of our grief when we think of the dead. But dates are assigned not to the physical regions themselves, but to their perceptualizations. As an illustration, imagine astronomers on different planets recording an emergence of a certain sun-spot by means of synchronized clocks. Suppose this event would be recorded by a solar inhabitant as his perceptualization at noon. Since it takes the light ray eight minutes to reach the earth from the sun, the terrestrial observer can not have his perceptualization of the sun-spot before eight minutes past twelve. The dating of the event from a more distant planet will be still later. Thus there is a set of alternative dates corresponding to percepts from different stations: 12; 12.08; and so forth. The representationalist would say that 12 is the date of the original event, while the other dates belong to different representations at different stations. The objective relativist, as he is not familiar with my amendments to his theory, would take the different dates as marking the different acts of perceiving the same events and as associated with the different sizes of the corresponding percepts. For example, he might point out that to a solar-inhabitant the sun-spot emerging at noon would be ocean-large, whereas the astronomer from the earth would register at 12.08 a spot of approximately the size of a penny. Both sizes, according to the objective relativist, belong to the original event relatively to different standpoints and both appear at noon, although the penny-size is apprehended through an act which occurs at 12.08. I agree with the objective relativist that the alternative sizes are

real (although relative) characteristics of the original sun-spot, but I deny that the penny size was at the sun at noon. At noon there was only one perceptual size at the sun, the largest one, the one that only a solar-inhabitant could ever have seen. At that date there was at the sun only a *disposition* for the penny-size which could not be actualized prior to the date of observation from the earth. The *actual* percept of the penny-size can not have any other date except the date at which it is perceived, and this is 12.08. My interpretation can be summed up thus: astronomers from different planets have different perceptualizations of the same source; these perceptualizations have different dates corresponding to the dates of the astronomers' acts of perception; accordingly, each astronomer perceives a contemporaneous manifestation even though it is an actualization of a past disposition; also each percept occurs only once, and when it disappears, it can not recur either in relation to the station from which it was sighted or from any other standpoint. The unique date of a perceptual event means that the passage of time is irretrievable; the inexhaustible supply of alternative dates of a physical source stands for cosmological immortality.

The theory of alternative percepts requires their location to be at a common source, for if they were not unified by the same location, they would be just so many independent and distinct events and their grouping as manifestations of a single physical thing would be unwarranted. There remains a dualism between the dispositional nature of the source and the actual character of its manifestations, another concession to critical realism, but this dualism does not mean that the physical thing is always hidden to perception like a Kantian thing-in-itself. The physicist, who speaks in terms of dispositional properties, would insist that he is not talking metaphysics. Of course, a positivist or a phenomenalist would be quick to point out that physical description in terms of dispositions is only a conventional language, but he can not prove this allegation because he has not succeeded in working out a different kind of language. The conventionalists who have tried to dispense with dispositional properties use instead hypothetical propositions. For example, they would define "*A* is combustible" by some such hypothetical proposition as "If *A* is put in a fire, then it is (or will be) burned." But a definition of this kind does not do justice to the physicist's meaning, because a hypothetical proposition, being a material implication, is true whenever its antecedent is false, which means, with regard to our example, that *A* is combustible regardless of its physical nature so long as one does not put it in a fire. Certainly a physicist would not agree to call a piece of rock (which has not been put on fire) combustible. I suggest that in order to give an adequate paraphrase of a dispositional term, the corresponding

hypothetical form must be prefixed by an existential clause which gives the means of expressing the presence of a disposition. Thus in defining "*A* is combustible" one might say that "There exists an *A* such that it has a disposition to be burned when fire is applied to it." But the ultimate justification of a formula in which the existence of a disposition is asserted must not be sought in the belief of the scientist, who, after all, may be more of a metaphysician than he thinks, but in the common experience of perception. One has a right to assume the existence of dispositions only because they are perceivable. Whitehead believes that dispositions, which he calls powers, are in the very foundation of perceptual experience: "Our experience starts with a sense of power, and proceeds to the discrimination of individualities and their qualities." [12] I agree with Whitehead and, furthermore, I have argued in this essay that discrimination of individualities and their qualities allows for different degree of specification or actualization, which means that to the extent to which one perceives "diluted" actuality one must have a perception of a disposition. And even when it comes to a set of alternative percepts, unless, of course, it is a set of alternative dates, they can be given in experience together with their determinable source. Thus when in moving around a physical object one sees how its successive perspective-phases shade off into one another, the absence of boundaries between two such phases is perceived as a disposition for the emergence of a boundary upon the "freezing" of one of the phases through a sudden cessation of motion.[13] To say that the field of perception is dynamic means, among other things, that one can choose among alternative percepts which of them is to be arrested for specification within a static perspective. But then as alternative for a choice before it is made, as really dynamic, data must originally appear to be not yet actualized through specification, but to be merging into a perceptually determinable thing.

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[12] *Op. cit.*, p. 162.

[13] Russell and some other philosophers hold that, in spite of the perceptual appearance to the contrary, motion as a physical process is discontinuous; but no one has denied continuity of motion as it is perceived. Yet, once perceptual continuity of motion is admitted, it is difficult to understand why one should expect dynamic discontinuity elsewhere. In fact the Principle of Indeterminacy in the recent physics, which excludes the possibility of a simultaneous precise determination of the position and of the velocity of a particle in motion, gives a counterpart to the impossibility of perceiving motion as a succession of data at a fixed position each. But if physical motion is a counterpart to perceptual motion, it would seem only reasonable to try to avoid dichotomy by suggesting that in seeing a moving body one sees its motion directly and not by representation.

VALUES, TIME, AND CONSCIOUSNESS

THE question as to whether values are temporal or non-temporal has received small attention from axiologists. Professor W. E. Hocking therefore renders a service when, in his recent book, *Thoughts on Death and Life*,[1] he raises the problem anew by proclaiming "one truth which has less repute than it deserves: the truth that *duration is a dimension of value.*" Of course he here signalizes this "truth," not for its own sake, but in order to get a strategic grip on the immortality problem. Consequently he has not developed this thesis in systematic fashion. The present paper is accordingly an effort both to consider what this "truth" means and to present some of the difficulties which it encounters as a contribution to value-theory.

First of all, then, we ask, what is a "dimension"? Hocking nowhere defines the term, but some such interpretation as the following seems indicated. Length is commonly called a "dimension" of space, intensity a "dimension" of consciousness. In both cases the dimension is taken to be, not a mere superficial aspect, but rather an indispensable attribute, so that no space could exist without length, no consciousness without some intensity. Similarly, Hocking clearly means that duration is an indispensable attribute of every value, so that there can be no value without duration. Furthermore, since there is nothing in logic which would prevent an entity from having more than one indispensable attribute or dimension, it is not surprising that Hocking discovers at least one other dimension of value, in addition to duration. For example, he treats consciousness as also a dimension of value. Indeed his arguments about the duration-dimension of value seem to presuppose those about the consciousness-dimension.

What then is the meaning of this proposition that duration is a dimension of value? (*a*) This could mean merely that every experience of value, every consciousness of value which you or I can have, must have some duration, however slight. This would be no bold new truth, for nobody since Kant doubts that every human conscious experience must fall within the time-stream. (*b*) Nor would anyone be disposed to disagree if it meant merely what Hocking goes on to tell us, namely, that each of us requires at least a little time in order to "realize" a value. For certainly the conscious experience of the *full* meaning or value of anything comes only with the passing of some amount—usually very considerable—of time. Surely there are psychological inertias which militate against instantaneous apprehending of either meaning or value.

[1] Page 98.

Yet all of this would be nothing new, and certainly it would not necessitate the conclusion that duration is a *dimension* of value—it would only assert that duration is a dimension of our *consciousness* of value. But let us go on to ask a further question: What does Hocking mean by "duration"? Clearly "duration" and "time" are interchangeable and synonymous for our author. Consequently this dimension of value to which Hocking is forcefully calling our attention might seem to be mere temporality, mere occupancy of time. If so, two things would follow. (1) A value which occupied no time at all would be both impossible and meaningless. (2) A value encompassing a long period of time would be more valuable than one covering only a short period of time.

Now Hocking does accept conclusion No. 1, for it is necessitated by his "truth." In so concluding he breaks completely with the Platonic view that values are timeless, dwelling in the serenity of the heavenlies where no clock ever ticks. Plato of course had sought thus to free values from time's clutches because he felt—as Hocking does also—that values ought not to perish, and he believed also that everything on which time lays its hands does perish. Now, with the same desire to render value imperishable, Hocking boldly ventures to take the other tack from Plato's, and so to offer the paradoxical position that values can be eternal only if they are temporal. "A 'survival,' " says he, "which should imply a passage out of time into timelessness would indeed be devoid of meaning." [2]

But Hocking is unable to accept conclusion No. 2. This second conclusion would mean, for example, that a seventy-year-old value would be more valuable than when it was thirty years old, and less valuable than it would be at the age of one hundred years. Over against this conclusion Hocking sets a hard saying which practically destroys it:—"If they [values] are transitory they are subjective, and if subjective they are false." [3] Consequently for him any value which perishes, whether at 30, 70, 100, or $n - 1$ years of age, must be *ipso facto* false and unreal. This must mean, then, that mere temporality, mere time-filling, is not what Hocking means by "dimension of value." Nor is duration that dimension, if we mean by duration "lasting only for a finite time, whether short or relatively long."

The duration which he seems really to be talking about is everlasting duration, and so the indispensable attribute which he assigns to value as its dimension is really the temporal character of everlastingness. "There is," he declares, " no *tour de force* by which man . . . can escape judging his values by the respect which time and

[2] *Thoughts etc.*, pp. 28–29.
[3] *Ibid.*, p. 254.

energy pay to them." [4] Again, "Without his [man's] continuance, his present can not hold its own meaning and worth." [5] For Hocking, then, the value of a value, so to speak, depends on its everlastingness—remove the everlastingness and you remove the value. In fine, if an alleged value is transitory, it is illusory: only if it abide forever is it real value.

So for Hocking the phrase "eternal values" is to be taken with the greatest seriousness, yet we must note its peculiar meaning here. (*a*) For Hocking, the "eternality" of value is quantitative, the eternal value perdures and must perdure through an *unlimited quantity* of time: "An 'eternal value' accessible to us mortals . . . would rightly call for unlimited time for its realizing." [6] This opposes him to another familiar view, namely: a value does not have to last forever in order to be an eternal value; eternality is a *quality* rather than a quantity—a life spanning a meagre thirty-three years can be, and is taken by many a man to be of supreme, even sublime value. (*b*) For Hocking the "eternal" value (or life) is doomed to maintain its identity *within the bounds of time;* it must submit itself endlessly to the gnawing of time's tooth, but never be consumed thereby. For the opposed view, on the other hand, an "eternal" life (or value) is one which is timeless, which is never a timeserver, which lives itself out to what may be its final end without regard for merely temporal considerations, and in genuine indifference to time. It is definable without reference to time—is "in this world but not of it." So also, for this opposed view, an "eternal" value is not a temporal entity specially privileged so as to be able forever to withstand time's gnawing: it is rather a nontemporal entity which can never be touched by time's tooth—because its locus is not in time. Nor does the common man require it to manifest any perduring ability in order to be judged as valuable and eternal. Its *quality* being that of eternality, it does not need that *quantity* called everlastingness. Immortal in a flash, it does not require an immortality achieved only through ever-rolling aeons of time. So it is that the common man recognizes his "immortals" while they are still on the earth, rather than require them first to exhibit their unendingness in a post-mortem world.

Hocking's conception of eternal values is thus fundamentally at odds with the insight of the generality of men. Perhaps this explains why his is "one truth which has less repute than it deserves." Hocking is nevertheless compelled to try to reconcile his essentially quantitative view with the common man's qualitative one. Such

[4] *Ibid, l.c.*
[5] *Ibid.*, p. 204.
[6] *Ibid.*, p. 200.

is the purport of the following splendid passage:

> It is common to suppose that quality alone is important; and that when experience has a satisfactory or noble quality, prolongation adds nothing to its worth. One hears the phrase "mere continuance," and thinks with aversion of a purely animal tenacity of being, willing to spin out through endless time the torpor of a tortoise or the vegetable somnolence of a sequoia. To experience happiness or greatness or intensity or elevation or ecstasy for an instant—that is held to be the goal; and then one may vanish content. And doubtless if the choice were between a long-continued hum-drum and a brief flash of flame, it is better to be able to say "I have lived" than to say "I have lasted." *But these are not the only alternatives.*[7]

One obvious alternative which would likely interest Hocking here is that of being able to combine quality and quantity of value, and so to say, "I have both lived and lasted." But it is difficult to see how he can make room for this alternative. So long as he insists upon denouncing all transitory values as being unequivocally false, he is bound to hold that any alleged value-quality which does not also have the indispensable attribute of everlastingness is utterly spurious. That is to say, the really indispensable attribute, the real dimension of value for him, is quantity, not quality. Consequently, for example, if a life is not everlasting, he must deny it all value-quality: "unless there is a way for the *continuance* of the human self, the world is full of the blunt edges of human meanings, the *wreckage of human values*, and therefore of the failures of God." [8] Now if *quality* of value is but wreckage unless accompanied by *quantity* of value, then it is difficult to see how it would be better to have both "lived" and lasted than merely to have lasted. In short, the alternative which combines quality and quantity of value is not really open to Hocking.

Although we can not but admire the boldness of a distinguished thinker who is thus willing to hazard all human values on everlasting continuance, we can not avoid noting some serious difficulties which his now explicit view confronts. (1) Since he has made everlastingness essential to all value, this must mean that value is forever put beyond all possible human apprehension; for certainly no human being can possibly know that his or any other life (or value) is everlasting. Even a life which had existed for millennia could not, even then, have any certainty that it would last forever. Hocking has thus inevitably rendered it impossible for us to apprehend any value either on this earth, or even in the hereafter. In a worthy effort to avoid "the wreckage of human values" he has given us a confusion of all earthly values, leaving each of us as ignorant of his value as a predestinationist is of his own "election" or "damnation."

[7] *Ibid.*, pp. 98–99. Italics mine.
[8] *Ibid.*, p. 111. Italics mine.

(2) Nor is this difficulty removed by the fact that Hocking here and there in the work admits "intuitions" of value, "intuitions of the deepening reality of a self," etc. For all of these intuitions are invalidated unless their value-objects are everlasting. And since we can not know the everlastingness of any of these value-objects, we are necessarily left in confusion about their value. Why then his insistence upon putting all the value-eggs in the one basket of everlastingness? It would be utterly unfair to what is a distinguished and complex argument to reply that our philosopher is merely interested in pandering to the hope of immortality, and so has worked up an argument for that purpose without any concern about its disastrous consequences for other phases of experience. (3) Yet the argument would soon lose much of its plausibility if we turned our eyes away from the immortality problem and looked at values other than human lives. Take a phenomenological look at economic values, for instance. Who, after October, 1929, could assert with a straight face that such values are everlasting, or indeed that they ought to be everlasting? But who, on the other hand, since economic values have been found very transitory, would take Hocking's other position and denounce them as wholly false, refusing henceforth to have any commerce with them? Again, who would say that the value of some lost song of Sappho is everlasting? Or that the esthetic value of a perishable painting is everlasting or else nil? And if value is everlasting, why, when I prolong the effort to enjoy my melon, do I find that the valued joy of eating it soon disappears? Why the well-known value-law of diminishing returns, if value is destined to grow temporally more and more unto the perfect day? Nor will it satisfy anybody to be told that all these fugitive values which may so quickly fade away are but fakes, for they are the values with which our daily life traffics regularly and inevitably. Whereas some thinkers have made time unreal in order to preserve and conserve values, Hocking seems dangerously close to making our every-day values unreal by his effort to make time real and then anchor values in its endless stream. Surely we have a right to demand that a theory of value shall enable us to discriminate values here on earth. One which, like Hocking's, not only fails to do this but actually negates all earthly values is, to say the least, of no earthly use.

But there are still other difficulties with this view that everlastingness is the mark of value. (4) For example, the things that seem most likely to be everlasting are not human beings, and this, if true, must lead to the unwelcome conclusion that these non-human entities are the really valuable things. How does Hocking strive to avoid this difficulty? He recognizes that "many sorts of

things have been conceived as everlasting—space and time, atoms, the total energy of the world, the sum of energy and mass, the ageless ultimates of physical analysis. Or delivering all particulars over to flux, then ideas and truths and laws of change; for these can not cease to be themselves nor to be true." [9] Yet he objects, none of these entities *knows* its lastingness; "nor are the Platonic ideas aware of their immortality!" [10] Consequently, he continues, "If lastingness is a mark of value, is it not an absurdity of a universe in which the everlasting things are things which do not know and can not become aware of their post of honor? . . . It is in such rejections of absurdity that the intuitions of mankind most clearly speak." [11] Thus by another appeal to intuition he has sought to avoid another difficulty.

In order to see if he has really avoided the difficulty, however, let us look more closely into the matter. His original intuition (that lastingness is a mark of value) entailed the absurdity of making the lasting stocks and stones, for example, valuable, whereas the self, being apparently transitory, would have become disvaluable. Then, in order to avoid this admitted absurdity, he had recourse to a new intuition, namely: a value which *knows* itself is more valuable than one which does not. But it must be noted that this does not help him one whit. For, as we have already seen, if value lies in lastingness (or everlastingness), then nobody can know his value, since nobody can ever really know himself to be either lasting or everlasting. What seems to me at this moment to be lasting may be annihilated in the next moment of time. The judgment of lastingness requires the future to establish it, and so must be eternally suspended; hence we human beings can never *know* our lastingness.

And the fact that we do have consciousness is of no help, for we still are left unable on Hocking's own premises to have any more *knowledge* of our value than the everlasting hills have of theirs. Consciousness here does little more for us than enable us to tantalize ourselves with fears that we may cease to be and therewith forfeit our claim to value. It must, of course, be granted that the consciousness of an individual does show that he has lasted up to the present conscious moment, but certainly this consciousness of a relative duration would not warrant a judgment asserting an absolute duration. A consciousness that I have had a capacity to last up to now certainly can not justify the inference that I have a capacity to live forever, or even that, if I did have such a capacity, it would be exercised. Hence Hocking properly limits himself to

[9] *Thoughts etc.*, p. 102.
[10] *Ibid.*, *l.c.*
[11] *Ibid.*, pp. 102–103.

the effort to show that we may believe ourselves to possess what he calls "immortability," the capacity to be immortal. In so doing, he *ipso facto* admits that we do not have any *knowledge* of our immortality itself, and consequently that we do not have any knowledge of our value either. This is the utterly discouraging thing about Hocking's whole theory: it makes value identical with everlastingness and therefore *forever unknowable.*

Furthermore, even if we grant that men can be conscious of their value (however value may be defined), there are still difficulties in Hocking's view that a value which is conscious of itself is more valuable, so to speak, than one which does not know itself. It seems palpably false to say that my consciousness of possessing a value really adds anything to the objective value possessed. The more objective the value is, the less likely is it that my subjective consciousness can add anything to it. The dollar which I did not know I had until I found it in my old suit is not now objectively worth more than a dollar simply because I am at this moment conscious of its presence and value. Indeed to assign to consciousness an inherent value is a most questionable procedure. A consciousness is valuable only if it is valuable. The consciousness of a murderer, as it directs his criminal acts, is certainly disvaluable. By contrast the unconsciousness of a sleeping man or of a rock would be highly valuable. The Buddhist Nirvana, offering complete absence of consciousness as the desideratum, is probably a radical recognition (not to say intuition) that consciousness may be the very antithesis of value. Relevant here also is the insight of the great idealist Bosanquet, as expounded by G. W. Cunningham: "To seek value in the conscious states of conscious beings is to seek it where it can not possibly be found, if such states are taken in abstraction from the world; for when so taken they are not only valueless but also meaningless." [12] Nevertheless Hocking steadfastly adheres to his own axiological emphasis on consciousness. Thus in a fashion suggestive of the Cartesian *Cogito,* he asserts, "One can doubt the value of everything in the universe except the valuer, for with his disappearance the whole world of values collapses." [13] And certainly this seems to make consciousness, for Hocking, an indispensable attribute of value.

Surely if one had to choose between *being* a value and *knowing* a value, one would prefer the being to the mere knowing. But, it may be objected, in reply, there is a third alternative, namely: to be *and know* a value is better than merely to be a value. Yet one must

[12] *Idealistic Argument in Recent British and American Philosophy,* p. 125. New York: Century Company, 1933.

[13] *Thoughts etc.,* p. 252.

not be too sure about this proposition. For there is a deep-seated human intuition (if we may follow Hocking in appealing to such) to the effect that it is dangerous for any man to become conscious of his value, since this very consciousness, if dwelt upon, becomes a kind of canker which may finally eat away his value. Besides, it is very doubtful if any one of the lives which the race has deemed supremely valuable—Socrates, Jesus, Buddha, for instance—could possibly have known more than a fraction of the value inherent in that life. Probably everybody lacks a consciousness of some of his value, so that in this respect conscious man is relatively in much the same situation as Hocking's sequoia, which lacks all consciousness of its value.

Still another difficulty is to be found in Hocking's view that value is temporal and quantitative. (5) This view dooms us to an endless quest—we must always seek but can never attain the value. Now such an endless quest is, on Hocking's own principles, necessarily meaningless and valueless. Any "valuable life" which stops short of completeness is really transitory, and so, according to Hocking, it must lose all its value in the stopping. Again, at any moment in its advance the valuable life is in a similar position—that is, its value is real value only by virtue of what is yet to come. Thus the valuable life *at any moment* of its advance, whether it is dead or alive, must be actually worthless, valueless. The lesson seems plain: Hocking, having committed values to time, has also committed them to the *schlechte Unendlichkeit* of time. This is one of the basic difficulties which we find in his view.

Though he has been none too explicit about it, Hocking makes an effort to avoid this difficulty by proposing a creative-advance theory of time. He admits that "after dead mechanism, the chief enemy of meaning is repetition, routine, mere quantitative prolongation." [14] Hence, "fertility in novelty is required if any continued experience is to retain such meaning as it has; still more so if it is to achieve such meaning as it is capable of." [15] This creative novelty is obviously one of the "alternatives" to "mere continuance" which he had in mind in a passage quoted earlier in this paper. On this view we would have a progressive temporal series of such nature that each moment or stage embraces and carries along with it the values achieved previously.

But this view does not extricate Hocking from his difficulties. (*a*) It does not avoid the quantitative characters inherent in every temporal series. For example, the series moves stepwise, additively; consequently we can not experience the series as a whole, or

[14] *Ibid.*, p. 194.
[15] *Ibid.*, p. 196.

come to the end of it, as we would have to do in order to ground the series. Each member of the series is thus at best a conditional or quasi-value; even if intuition should unequivocally proclaim it a real value, this proclamation would be belied by a later stopping of the series—a contingency the possibility of which Hocking and all of us must recognize. (*b*) It, instead of saving values from perishing, subjects them to the gravest risk. Louise Robinson Heath, writing before publication of Hocking's *Thoughts*, in speaking of the creative-advance conception of time, pointed out that—

> Each later stage may include all values attained in the earlier. They are, however, included in such a fashion that their value quality may be altered. Thus the pain of the past may be present now as pleasure. We are reminded of the *olim meminisse juvabit* of our school days. On the other hand, pleasure may also lose its pleasurable quality. Thus the creative advance assures that this is a world in which values are possible, may become actual, *but in which there is an element of risk.*[16]

In other words, such a time-stream is as likely to destroy value as to preserve it.

It now appears that neither the mere continuance view of time nor the creative advance view can guarantee value against perishing. Because of the admittedly noxious effects of the mere continuance view, Hocking flies to the creative advance but without avail, for this too submits value to the gravest risk. The moral of it all seems clear: if values are to be conserved they must be removed from dependence upon the time stream, and so, in some sense, made timeless.

Hocking's commendable effort to confirm our faith in human immortality through bringing values down to earth and confining them within temporal bounds, therewith wrapping them in the robes of everlasting time, now appears to have accomplished very little. He really offers us a tantalizing form of immortality, an everlasting immortality such that, even if we should *possess* it, we could never *know* it. In this life men have always hoped for immortality and feared lest their hope be a vain delusion. Hocking merely perpetuates *both* this hope and this fear. For at no time in the next life would we, on his premises, be any more certain of our immortality than we are now. Whereas religion has taught men to hope that "then we shall see face to face," Hocking prolongs the agony of uncertainty in a realm still best symbolized by the glass through which we see darkly. It is questionable whether anyone would wish such an immortality. Worse still, in giving us the possibility of such an immortality, Hocking has made it impossible for us genuinely to know any value, and has been compelled to cast doubt upon all

[16] *The Concept of Time*, p. 231. Chicago: University of Chicago Press. 1936. Italics mine.

our "values" in this earthly life, to brand them as transitory and false. Such an axiological absolutism, once its results are clearly understood, can not hope to attract adherents, not even among those who long for everlasting life. Perhaps Aristotle is still correct in saying, "Endless duration makes good no better nor white any whiter." [17]

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BOOK REVIEWS

The Philosophy of Physical Science. SIR ARTHUR EDDINGTON. (Tarner Lectures, 1938.) New York: The Macmillan Company. 1939. ix + 230 pp. $2.50.

Without covering all the ground traversed by his earlier philosophical writings, the present volume contains the essentials of Eddington's familiar interpretation of science—but with not even a shred of comfort for his many critics in the form of retractions from his previously expressed views. Indeed, Eddington is more confident than ever that philosophical idealism is the logical outcome of contemporary physics, and that the "matter" of which physics yields structural knowledge is something akin to consciousness. He is now convinced that quantum laws no less than the laws of molar physics are "mind-made," and that the "objective laws of governance" (if any such laws there be and which at one time he believed were supplied by quantum theory) must be sought in types of behavior not accounted for in the present scheme of physical science—in biology, psychology, life, consciousness, and spirit. The distinctive feature of the present book is its frank epistemological approach, with its insistence that the theory of knowledge should be the point of departure for understanding the nature of the physical world. It maintains that the "fundamental laws" of nature are subjective, that they can be deduced from purely epistemological considerations with the consequence that these laws are both truistic and necessary, and that our sensory and intellectual equipment imposes these laws upon the materials directly accessible for study. This, in brief, is Eddington's philosophy of "selective subjectivism," which without neglecting Berkeley acknowledges its allegiance more definitely to Kant.

However, although Eddington has not been convinced by his critics, his critics are not likely to find the present version of his

[17] *Nicomachean Ethics*, Bk. I, Chap. IV.

philosophy more plausible than the previous ones. He insists that the physical universe must be identified as the world "described" by the science of physics (p. 1), and also that epistemological conclusions must be subjected to the same kind of observational control as are the hypotheses of physics (p. 5). But if physics and epistemology are admitted to have the same logical status, why should the deliverances of the latter be taken to be more penetrating and fundamental than those of the former, and why should the "reality" of the physical world be more disputable than is the "reality" of the operations of thought (pp. 3, 18 ff., 23)? Again, what is the sense of calling the "fundamental laws" of nature subjective if, as it turns out, selective subjectivism is a pervasive feature of all knowledge? (Eddington does not illustrate these laws clearly, but declares that they are the "differential equations determining the progress of the universe," p. 63.) For even the features of experience said to be objective (such as the manifestations of consciousness) must also be the outcome of the selective subjectivism of our sensory and intellectual equipment (cf. pp. 114, 148, 195, 217). If the "objective laws of governance" would also have to be presented to us *via* our subjective forms of thought (p. 66), the distinction between subjective and objective has no longer an ascertainable sense, and the terms do not continue to carry the meanings initially associated with them. Eddington maintains that it is not necessarily a disproof of the *a priori* and subjective character of physical laws that they are clearly illustrated by prominent features of the familiar world (p. 133). But if that is so, what *could* disprove this claim, and why isn't Eddington's philosophy of selective subjectivism just a necessary truism, because of the definitions of his terms, with the consequence that it too is only "subjective"? In any case, he can not avoid the paradox of having to impugn the "reality" and the objectivity of our physical knowledge, just because we must *think* in order to know, only to accept the objective reality of philosophical idealism. Physical knowledge presupposes reflective thought and therefore selection. Does Eddington believe that the knowledge claimed by idealism does not? But perhaps that is exactly the not altogether flattering import of his reminder that "we just can not help being brainy, and must try to make the best of it" (p. 195).

That Eddington's philosophy of science is a consequence of a systematic misuse of terms has been urged against him before (notably by Miss Stebbing, whom he dismisses with a quip), and can be easily established. Thus, to begin with small points, the physical world which was initially identified as that which is "de-

scribed'' by our physical knowledge, is presently said to be an association of pointer-readings (pp. 100–101) presented as the contents of an individual consciousness (p. 195). But the physical universe identified in the first way is a universe containing gravitating bodies, accelerated particles, electrical currents, and the like, and it is only by a sleight of hand that these can be said to be pointer-readings in consciousness. Again, what student of relativity will recognize the essence of that theory to consist in the fact that ''we observe only *relations* between physical entities'' (p. 31)? Is it very surprising if now the theory of relativity can be ''deduced'' from the forms of thought? And even though Eddington follows respectable authorities in saying it, can anyone who has ever employed the Newtonian gravitational formula in solving a mechanical problem honestly characterize it as being simply a summary statement of what we have observed (p. 44)?

Eddington maintains that we can be certain of the universal validity of the ''fundamental laws'' of nature because we ourselves impose them upon experience. But even if the formal deduction of these laws from the forms of thought is granted (in the present book Eddington supplies only the barest outline of the alleged deduction), it is soon evident that this claim means much less than what it at first sight appears to mean. For he readily admits that these laws tell us nothing about the ''special facts'' of nature —such facts as that the density of matter in many regions of the universe is vanishingly small, or that the earth is spherical. In fact, the interpretation of the ''fundamental laws'' as laws for familiar physical objects can not be made on *a priori* grounds, as Eddington acknowledges in so many words (p. 134), and the boundary conditions for the differential equations must admittedly be supplied by experimental physics (p. 63). It thus turns out that the ''fundamental laws'' of nature are simply uninterpreted formulae, and that the *a priori* deduction that Eddington claims for them is nothing other than the deduction of theorems in a branch of pure mathematics. But it is one thing to make the claim that pure mathematics consists in the deduction of consequences from freely chosen postulates, and quite another thing to maintain that what has been deduced is a law in the positive science of physics.

Eddington's claim to be able to deduce the numerical values of certain ''constants of nature'' must be adjudged in a similar way. It is certainly possible to determine *a priori* the value of constants: for example, to calculate theoretically the value of the angle-sum of a triangle in Euclidean demonstrative geometry. If then we employ Euclidean geometry as the theory of physical

measurement, we may be quite certain that every physical triangle will have its angle-sum equal to two right angles. But issues of empirical fact are not thereby eliminated—they are simply shifted to another place. Whether a given physical configuration is indeed a Euclidean triangle remains a question which involves not merely issues of pure mathematics but also of experimental physics. In general, therefore, in a systematic exposition of a science it is possible to begin with general principles and to show that all the known facts fit into the framework of the theory. But a system of abstract formulae is not a theory of physics, until its terms are interpreted as referring at some point to observational material; and it is not an adequate theory, unless it provides solutions for problems which can be identified without using that theory as the sole mode of identification. For if a theory always determines whether something claimed to be an observational test of the theory is "really" an observation, it is not a physical theory at all, and there is no point whatsoever in conducting experiments for testing it. Not the least puzzling feature of Eddington's views is that they are not obviously compatible with the facts that physics has a history and that experiments continue to be made.

It is now a matter of common knowledge that what appear to be laws of physics may sometimes be "disguised definitions" or "conventions"—even though at one time these laws were empirical generalizations. Such "disguised definitions" are best construed as demands or postulates, in terms of which subject-matter is analyzed and the system of physical knowledge organized. To the extent that Eddington emphasizes this feature of theoretical physics, and to the extent that he recognizes that such postulates could in principle be retained no matter what the "special facts" may be, his philosophy of science has a sound core. But to build a philosophy simply on this is to build on a half-truth. For in the first place, the conventional status of a principle is a function of the particular organization of physical science at a given time. If, for example, the equality in weight of two objects is defined in terms of their being in equilibrium when placed at the extremities of a lever supported at its midpoint, the law of the lever is a truistic consequence of this mode of measuring weights. But if the principle of the lever is now a convention, the law of spring balances (Hooke's Law) is not, but is empirically contingent. It is, however, possible to define the equality of weights in terms of Hooke's Law, so that while this law now becomes a definition, the law of the lever acquires the status of a contingent physical principle. Accordingly, to say that a law is a convention requires supplementation by a specification of its function in the system of

physics—where *the system of physics as a whole* is not accepted on definitional grounds alone.

But in the second place, the introduction of a postulate or "disguised definition" is usually made on the tacit assumption that there are in fact measurable properties of bodies which satisfy the conditions stipulated by the postulate. Thus, the principle of the invariance of mechanical laws with respect to certain transformations may be construed as a convention. But its fertility depends on the fact that bodies do have measurable traits and relations which satisfy the indicated conditions, and that these properties (e.g., mass, velocity, etc.,) are those in terms of which the behavior of things under discussion can be understood and predicted. It is easy enough to institute conventions; it is not so easy to set up such conventions which will be fruitful in the solution of specific problems. And it is pertinent to note that Eddington himself admits that while the "fundamental laws" are "compulsory," there is no compulsion that actual observations shall satisfy them (p. 20).

It is admittedly important to determine which propositions of the sciences are asserted on factual or contingent grounds, and which are definitory and postulational. But the analysis has not been carried far enough if it terminates in the conclusion that such postulates are adopted simply because of the inherent structure of thought or if it neglects the factual basis of theoretical science. There is just one way to understand without illusion what is the import of the methodological principles of a science—and that is by exhibiting their identifiable functions in inquiry. The source of Eddington's defects as a philosopher of science can be plausibly located in his refusal to perform such an analysis.

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BOOK NOTES

Platon, sa vie, son oeuvre, avec un exposé de sa philosophie. ANDRÉ CRESSON. (Philosophes: collection dirigée par Émile Bréhier.) Paris: Félix Alcan. 1939. 133 pp. 12 fr.

The life of Plato is sketched in seven pages, an account of his philosophy is given in forty-one pages, and the remainder of the book consists of brief, scattered extracts from his writings in various translations. The author attributes "the extraordinary place" that Plato occupies in "the world of philosophers" to the development of Christianity and the use that it has made of his doctrine. With regard to the theory of ideas, to which he gives the

central position, he thinks it is "very true" that logically the possible is prior to the real, and that everything is possible which implies no contradiction. "Hence, it is very true that the possible has something eternal which escapes the conditions of space and time." D. S. M.

Cicero's Presentation of Epicurean Ethics. A Study Based Primarily on De Finibus I and II. MARY N. PORTER PACKER. New York. Privately printed. 1938. 127 pp.

As the title of this essay indicates, the author attempts a comparison between the first two books of Cicero's *de Finibus* and the extant writings of Epicurus. The result of this comparison shows that Cicero's grasp and interpretation of the Epicurean doctrine was inadequate and that he had a bias against some of the Epicurean tenets. The author makes it clear that Cicero had little understanding of the Epicurean doctrine of knowledge, that he failed to grasp the happy tranquility so dear to Epicurus, and that in translating the Epicurean notion of *hedonē* by the Latin *voluptas* Cicero was guilty of a serious misinterpretation of the Epicurean ethics.

A study of this type should be preceded by a statement and analysis of the presuppositions in terms of which Cicero selected and interpreted his materials and the standards which he employed for the acceptance and rejection of the various tenets of the philosophies of his day. True, there is a reference in the essay to the fact that Cicero was a man of action. But the connection between Cicero the politican and the entire mode of procedure in the *de Finibus* is not connected to the extent of making clear the various omissions and condemnations of the Epicureans. Thus when one remembers that Cicero's mind was riveted to the body of the republic, one is able to see that what Cicero tried to do in the first two books of the *de Finibus* was to refute Epicurean individualism and the ethics derived from the consideration of the individual as its basis. It is clear then why Cicero rejected the Epicurean notion of justice, courage, friendship, and the other virtues. There was for Cicero a difference between the justice practised by a company of Epicurean sages and the kind of justice necessitated by a political organization, just as there was a difference between the courage of a monogrammic Epicurean and the courage of a defender of the political scheme of Rome. On the whole one may question the advisability of posing the first two books of the *de Finibus* against the entire corpus of Epicurean writings.

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NOTES AND NEWS

We call attention to the publication by the Warburg Institute of its new periodical under the title of *Mediaeval and Renaissance Studies.* Publication began in October, 1939, and issues appear twice a year. The subscription price is 21s or $5.00 per annum; single issues 15s or $3.75, and the address is The Warburg Institute, Imperial Institute Buildings, London, SW 7. These studies are edited by Richard Hunt of the University of Liverpool and Raymond Klibansky of Oriel College, Oxford. Special attention is being given to "the philosophical tradition of classical Antiquity and its transformation, and studies arising out of coöperative enterprises such as the *Corpus Platonicum Medii Aevi* (prepared under the auspices of the British Academy) will be included."